FIG. 1

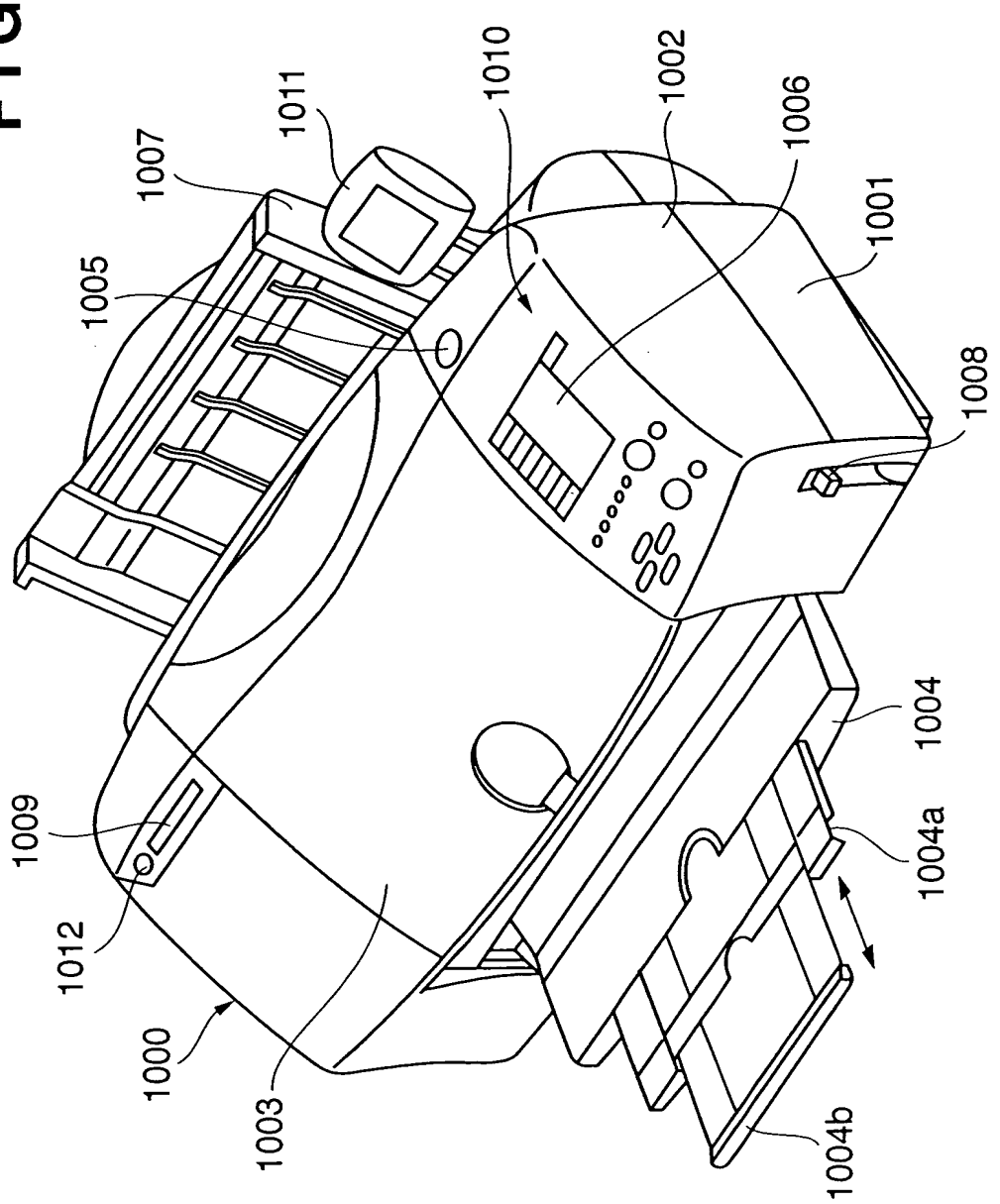

1011
1010
1002
1007
1006
1005
1001
1008
1009
1004
1004a
1012
1000
1003
1004b

FIG. 2

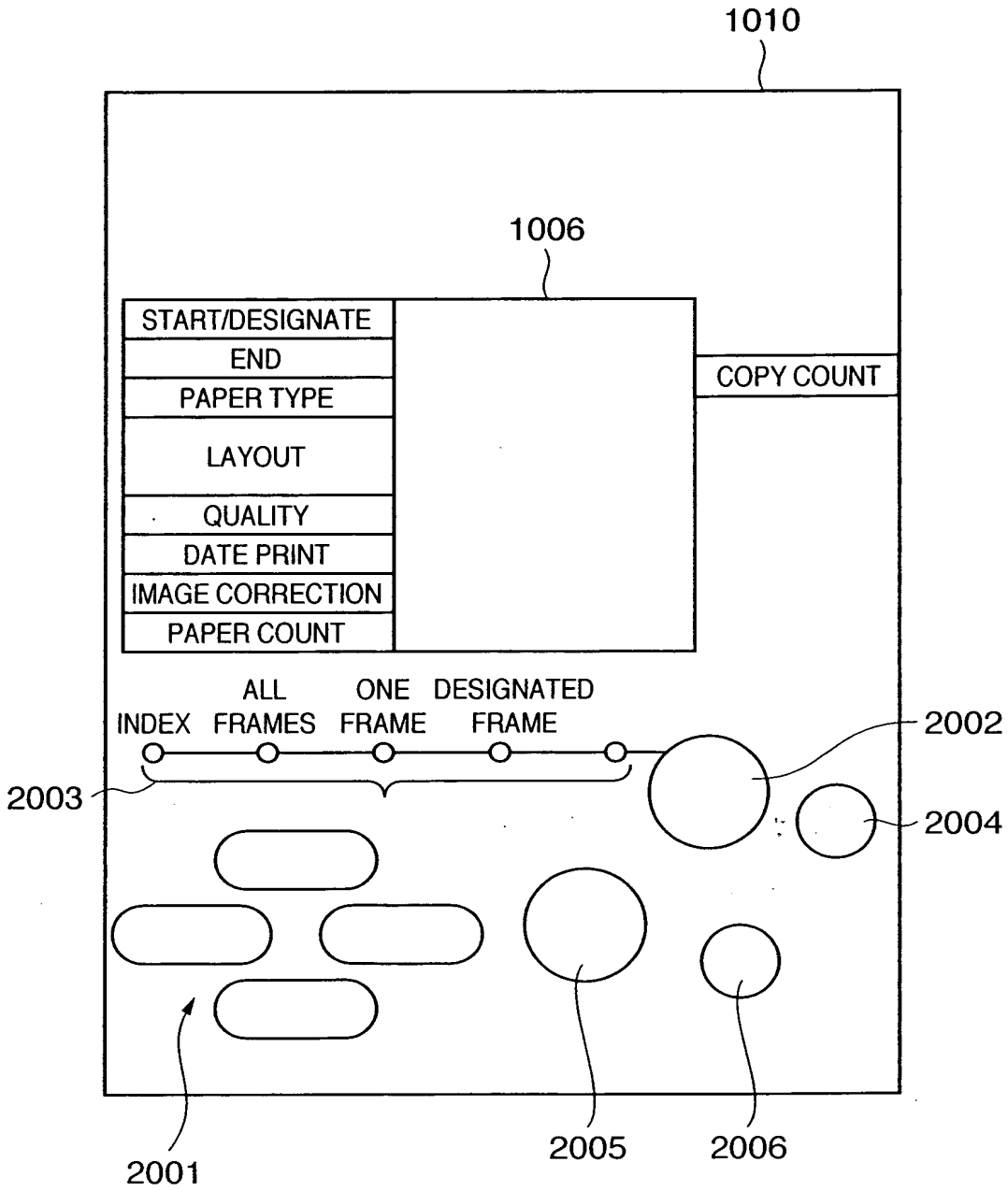

1010
1006
START/DESIGNATE
END
PAPER TYPE
LAYOUT
QUALITY
DATE PRINT
IMAGE CORRECTION
PAPER COUNT
COPY COUNT
INDEX
ALL FRAMES
ONE FRAME
DESIGNATED FRAME
2002
2003
2004
2001
2005
2006

FIG. 3

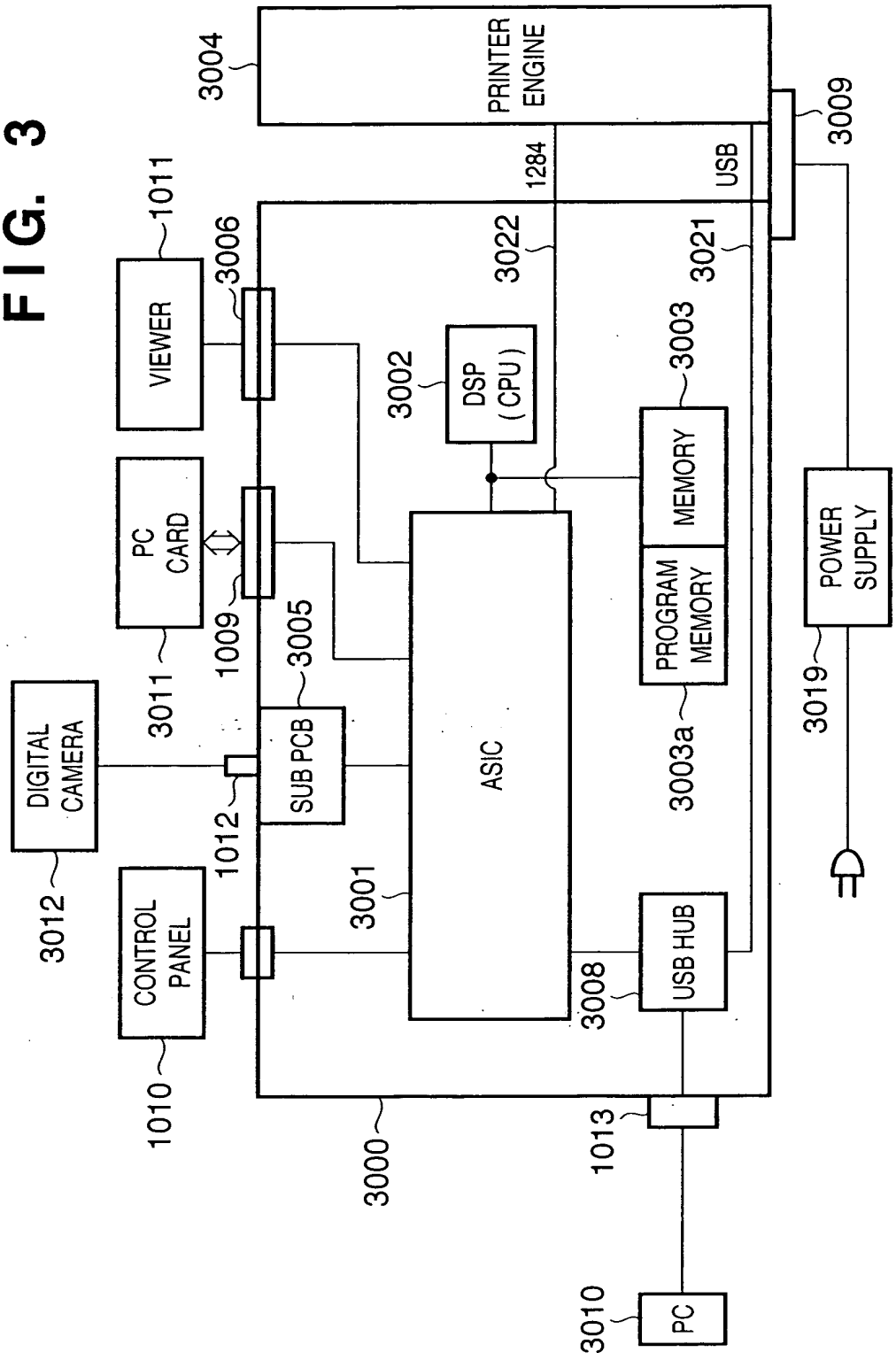

3004
PRINTER ENGINE
3009
1284
USB
1011
VIEWER
3006
3022
3021
3002
DSP (CPU)
3003
MEMORY
PC CARD
1009
3005
PROGRAM MEMORY
POWER SUPPLY
3011
SUB PCB
ASIC
3003a
3019
DIGITAL CAMERA
1012
3012
CONTROL PANEL
3001
USB HUB
3008
1010
3000
1013
3010
PC

FIG. 4

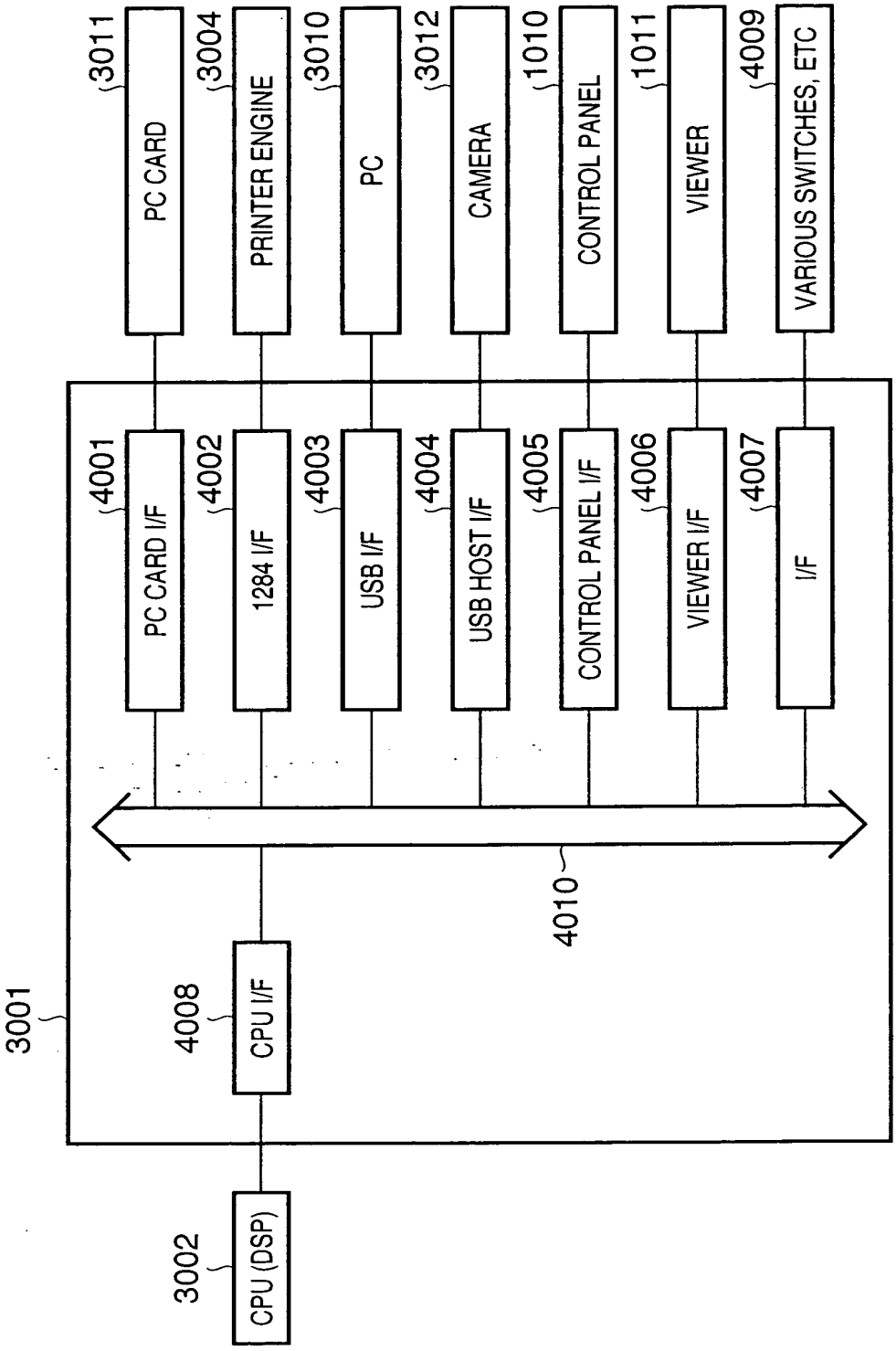

3011
PC CARD
3004
PRINTER ENGINE
3010
PC
3012
CAMERA
1010
CONTROL PANEL
1011
VIEWER
4009
VARIOUS SWITCHES, ETC
4001
PC CARD I/F
4002
1284 I/F
4003
USB I/F
4004
USB HOST I/F
4005
CONTROL PANEL I/F
4006
VIEWER I/F
4007
I/F
4010
3001
4008
CPU I/F
3002
CPU (DSP)

FIG. 5

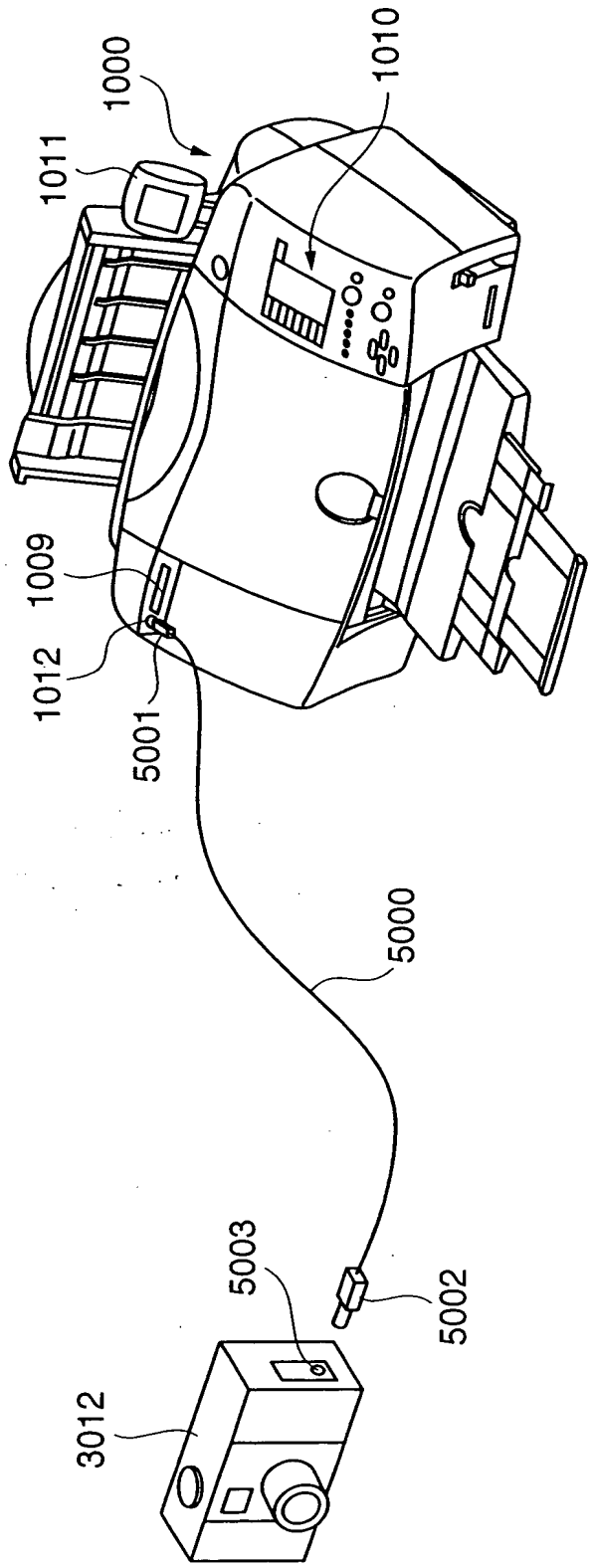


FIG. 6

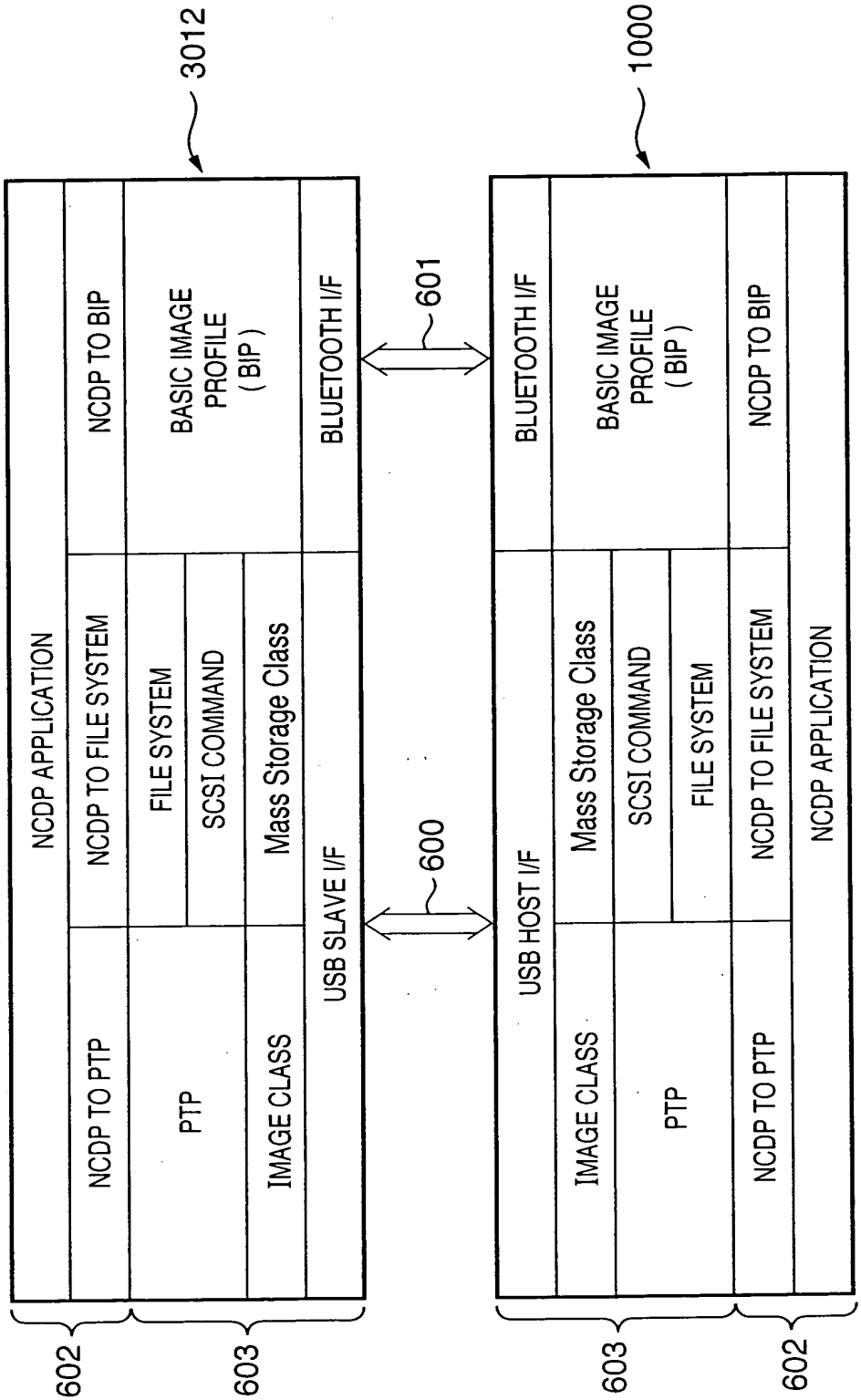

DSC
NCDP APPLICATION
NCDP TO PTP
NCDP TO FILE SYSTEM
NCDP TO BIP
PTP
FILE SYSTEM
SCSI COMMAND
BASIC IMAGE PROFILE (BIP)
IMAGE CLASS
Mass Storage Class
USB SLAVE I/F
BLUETOOTH I/F
3012
600
601
1000
USB HOST I/F
BLUETOOTH I/F
IMAGE CLASS
Mass Storage Class
SCSI COMMAND
BASIC IMAGE PROFILE (BIP)
PTP
FILE SYSTEM
NCDP TO PTP
NCDP TO FILE SYSTEM
NCDP TO BIP
NCDP APPLICATION
PD PRINTER
602
603
603
602

FIG. 7

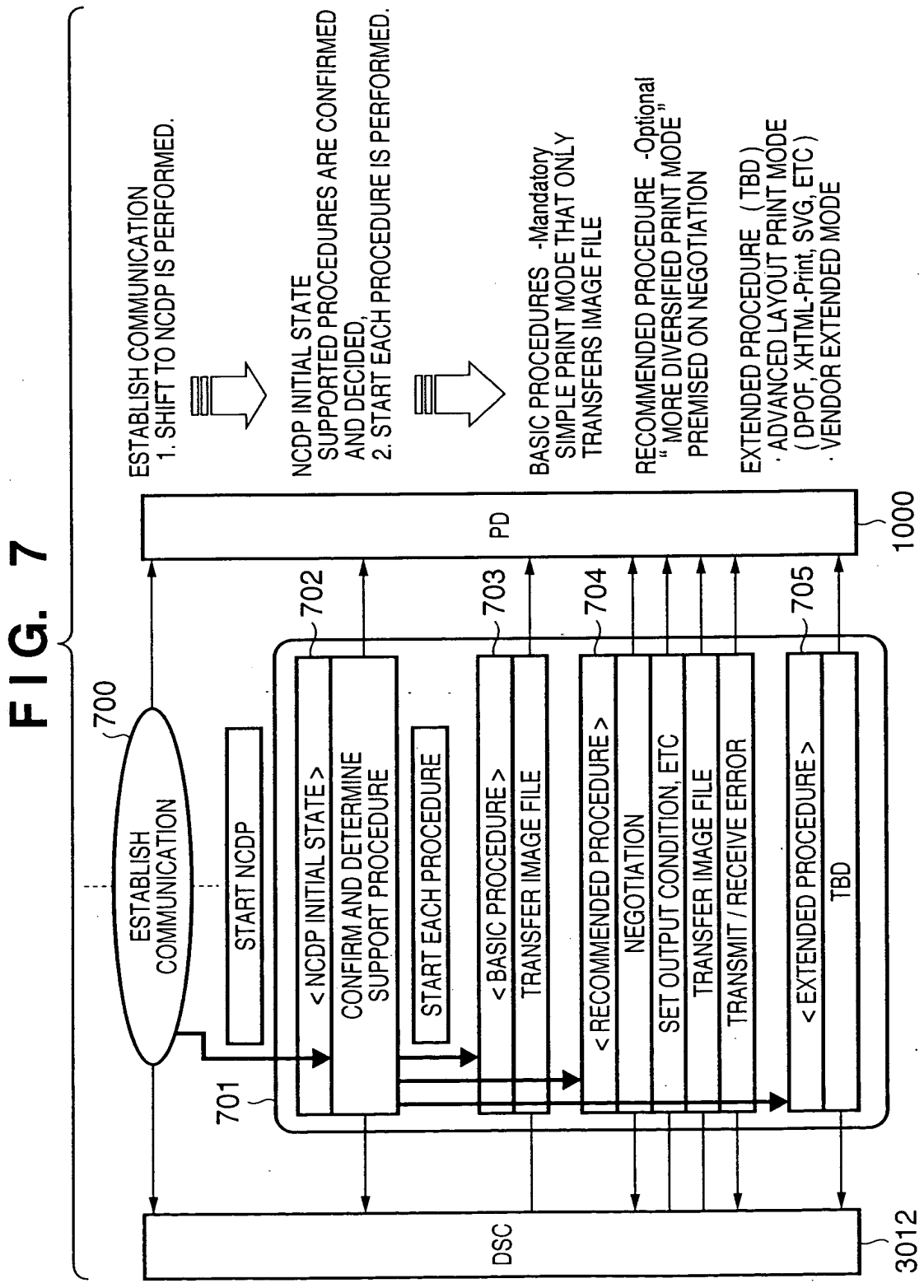

ESTABLISH COMMUNICATION
1. SHIFT TO NCDP IS PERFORMED.
NCDP INITIAL STATE
SUPPORTED PROCEDURES ARE CONFIRMED AND DECIDED,
2. START EACH PROCEDURE IS PERFORMED.
BASIC PROCEDURES -Mandatory
SIMPLE PRINT MODE THAT ONLY TRANSFERS IMAGE FILE
RECOMMENDED PROCEDURE -Optional
" MORE DIVERSIFIED PRINT MODE"
PREMISED ON NEGOTIATION
EXTENDED PROCEDURE (TBD)
· ADVANCED LAYOUT PRINT MODE
(DPOF, XHTML-Print, SVG, ETC)
· VENDOR EXTENDED MODE
700
ESTABLISH COMMUNICATION
START NCDP
701
< NCDP INITIAL STATE >
CONFIRM AND DETERMINE SUPPORT PROCEDURE
702
START EACH PROCEDURE
< BASIC PROCEDURE >
TRANSFER IMAGE FILE
703
< RECOMMENDED PROCEDURE >
NEGOTIATION
SET OUTPUT CONDITION, ETC
TRANSFER IMAGE FILE
TRANSMIT / RECEIVE ERROR
704
< EXTENDED PROCEDURE >
TBD
705
PD
1000
DSC
3012

FIG. 8

	TYPE OF COMMAND	BASIC	RECOMMENDED	EXTENDED	FUNCTION
PRINTER	NCDPStart	○	○	○	START NCDP
	ProcedureStart	○	○	○	START BASIC, RECOMMENDED, OR EXTENDED MODE
	NCDPEnd	○	○	○	TERMINATE FROM NCDP
	Capability		○		NOTIFY PRINTER FUNCTION
	GetImage	○	○		ACQUIRE DIGITAL IMAGE
	StatusSend		○		NOTIFY FATAL ERROR
	PageStart		○		NOTIFY PRINT START (UPON FEEDING SHEET FOR EACH PAGE)
	PageEnd		○		NOTIFY PRINT END (UPON DISCHARGING SHEET FOR EACH PAGE)
	JobEnd	○	○		NOTIFY END OF PRINT JOB
	JobDataDone	○	○		NOTIFY COMPLETION OF RECEPTION OF JOB DATA
DIGITAL CAMERA	JobStart	○	○		PRINT START MESSAGE
	JobAbort		○		PRINT ABORT MESSAGE
	JobContinue		○		PRINT RESTART MESSAGE

FIG. 9

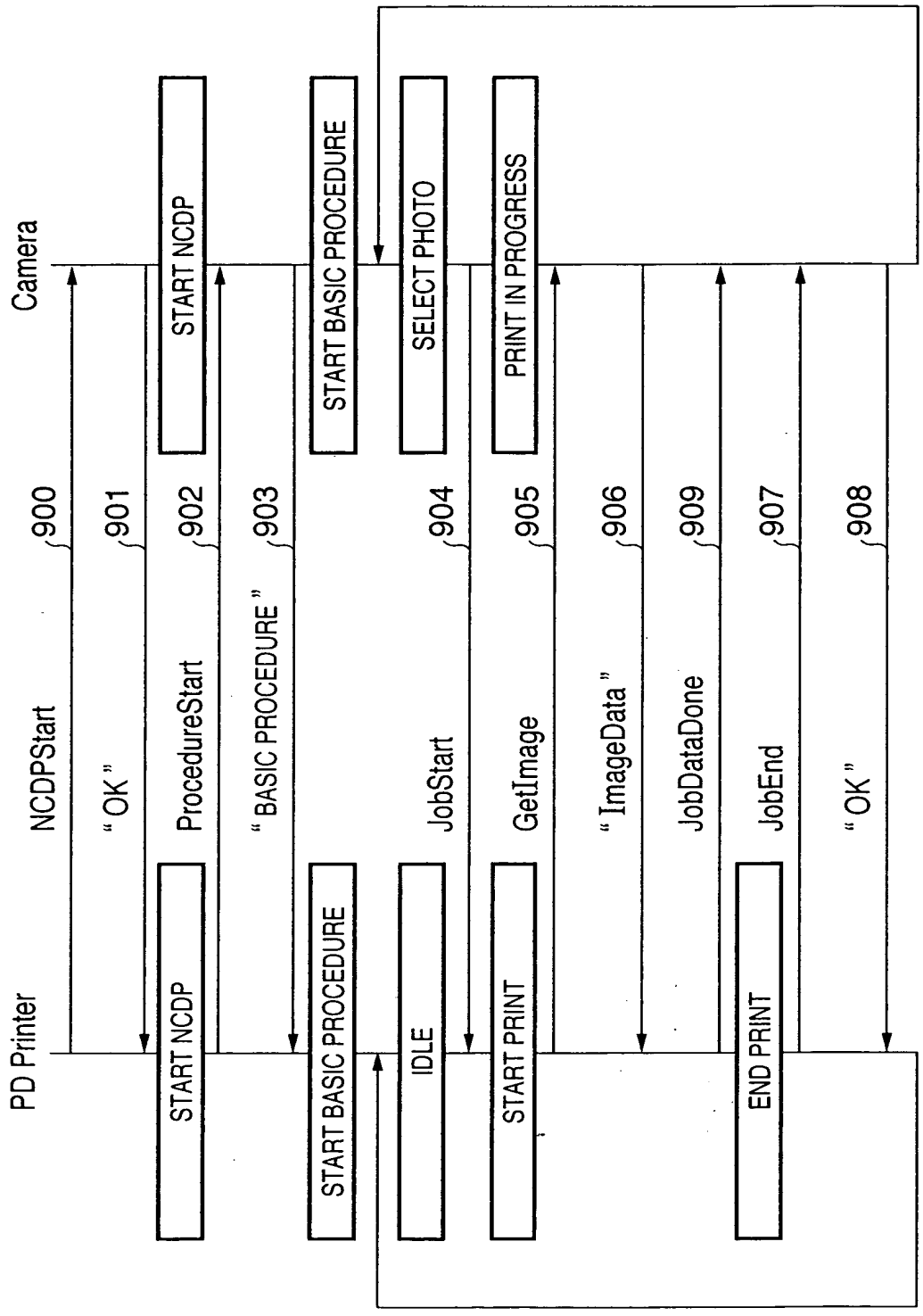

PD Printer
Camera
NCDPStart
900
"OK"
901
START NCDP
ProcedureStart
902
START NCDP
"BASIC PROCEDURE"
903
START BASIC PROCEDURE
START BASIC PROCEDURE
JobStart
904
IDLE
SELECT PHOTO
GetImage
905
START PRINT
PRINT IN PROGRESS
"ImageData"
906
JobDataDone
909
JobEnd
907
END PRINT
"OK"
908

FIG. 10

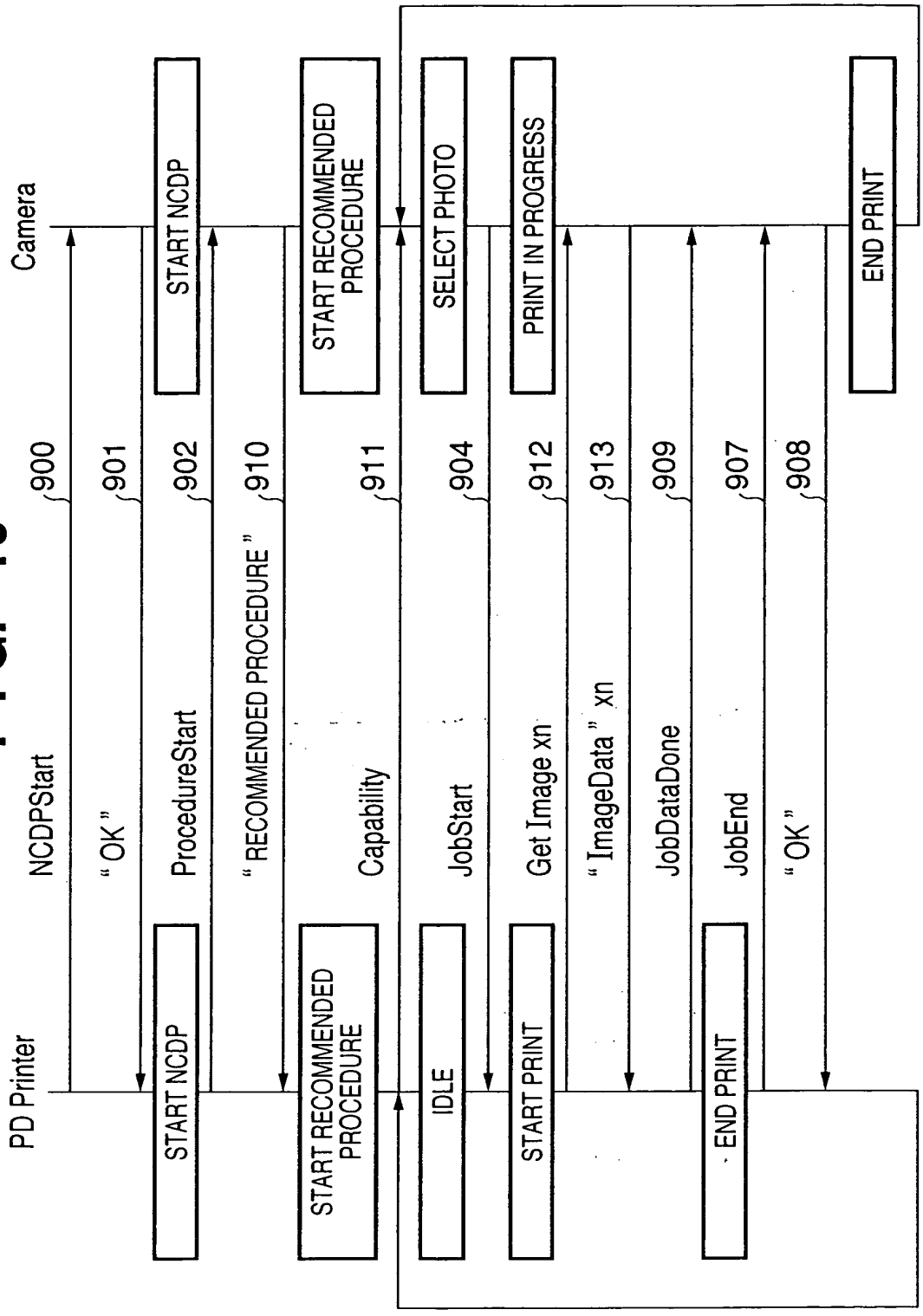

PD Printer
Camera
NCDPStart
"OK"
ProcedureStart
"RECOMMENDED PROCEDURE"
Capability
JobStart
Get Image xn
"ImageData" xn
JobDataDone
JobEnd
"OK"
START NCDP
START RECOMMENDED PROCEDURE
IDLE
START PRINT
END PRINT
START NCDP
START RECOMMENDED PROCEDURE
SELECT PHOTO
PRINT IN PROGRESS
END PRINT
900
901
902
910
911
904
912
913
909
907
908

FIG. 11

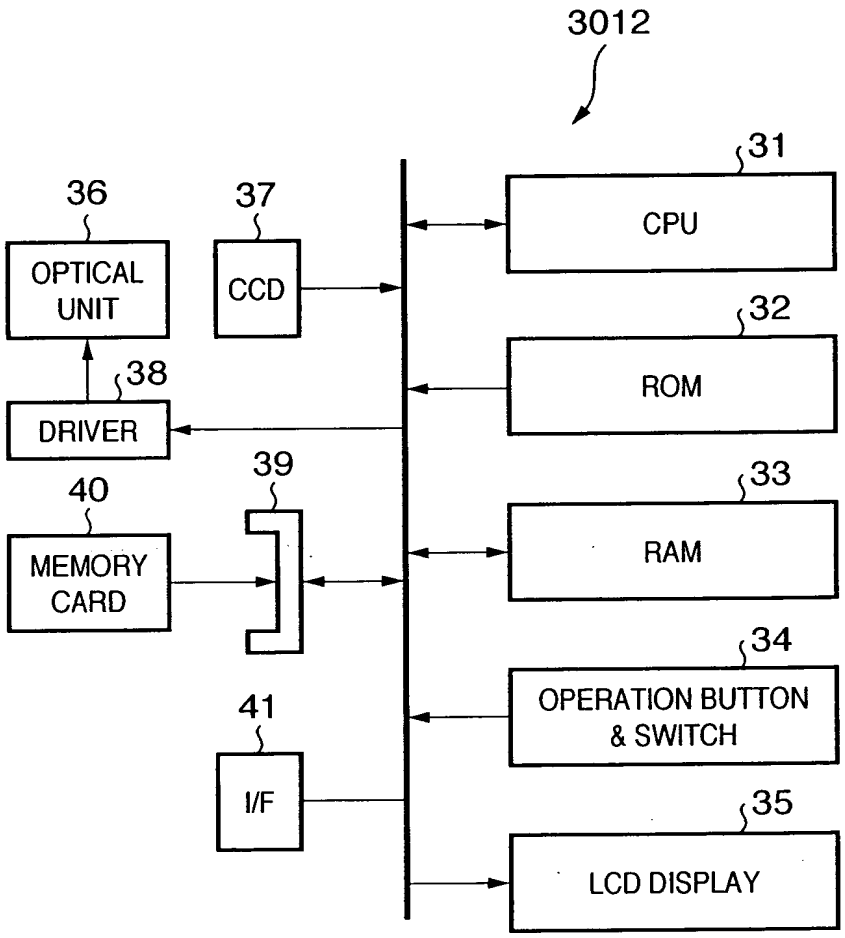

3012
31
CPU
36
OPTICAL UNIT
37
CCD
32
ROM
38
DRIVER
39
40
MEMORY CARD
33
RAM
34
OPERATION BUTTON & SWITCH
41
I/F
35
LCD DISPLAY

FIG. 12

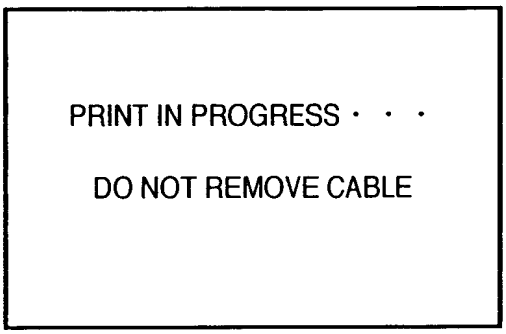


FIG. 13

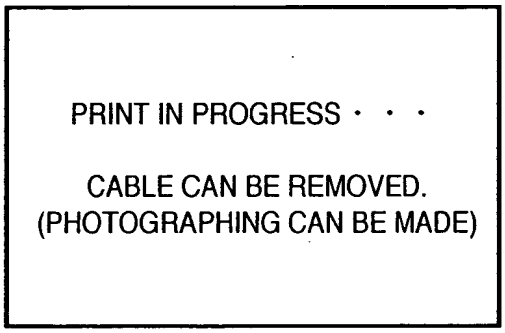

PRINT IN PROGRESS · · ·
CABLE CAN BE REMOVED.
(PHOTOGRAPHING CAN BE MADE)

FIG. 14

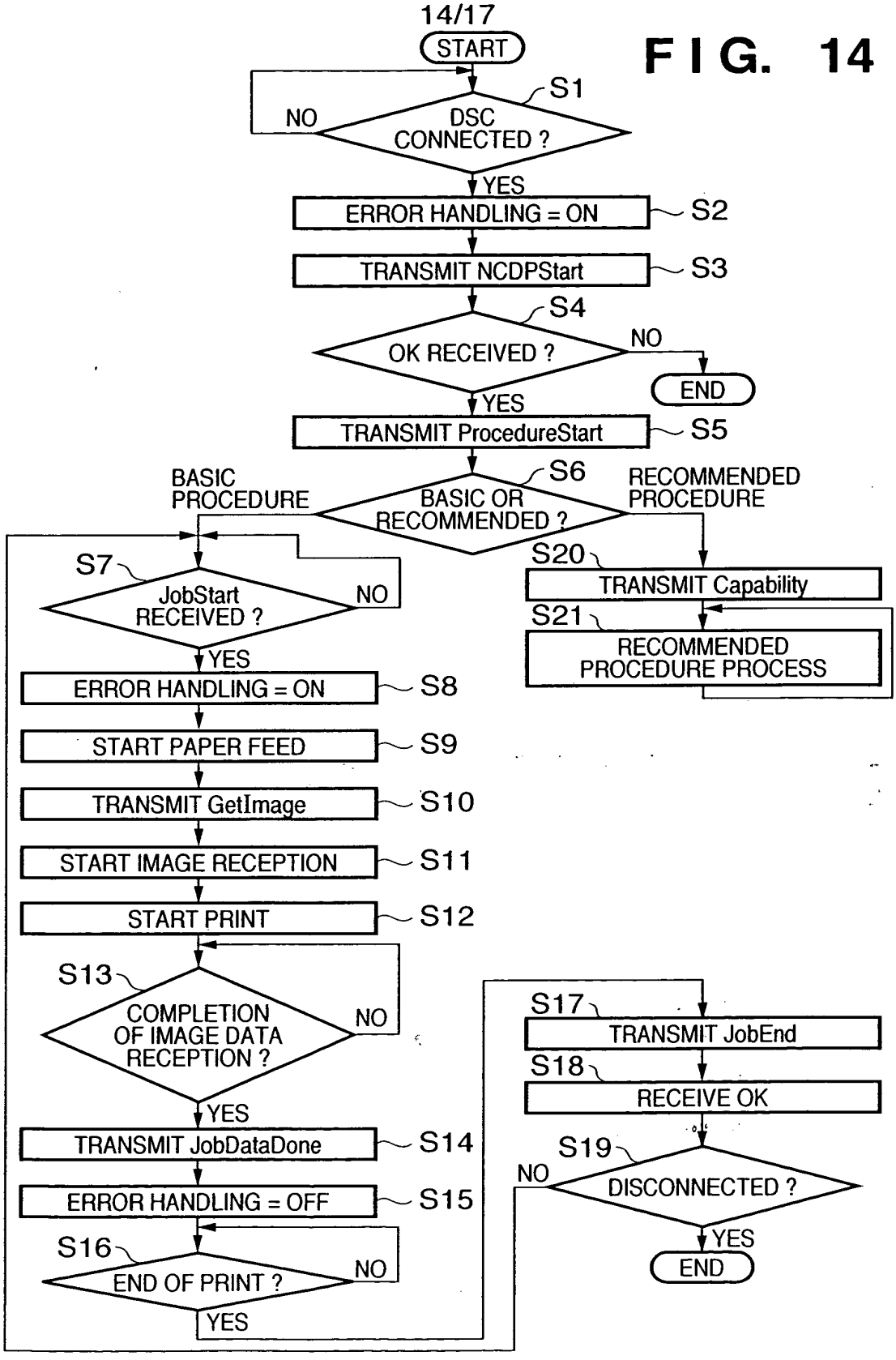

START
S1
DSC CONNECTED ?
NO
YES
ERROR HANDLING = ON
S2
TRANSMIT NCDPStart
S3
S4
OK RECEIVED ?
NO
END
YES
TRANSMIT ProcedureStart
S5
BASIC PROCEDURE
S6
BASIC OR RECOMMENDED ?
RECOMMENDED PROCEDURE
S7
JobStart RECEIVED ?
NO
YES
S20
TRANSMIT Capability
S21
RECOMMENDED PROCEDURE PROCESS
ERROR HANDLING = ON
S8
START PAPER FEED
S9
TRANSMIT GetImage
S10
START IMAGE RECEPTION
S11
START PRINT
S12
S13
COMPLETION OF IMAGE DATA RECEPTION ?
NO
YES
TRANSMIT JobDataDone
S14
ERROR HANDLING = OFF
S15
S16
END OF PRINT ?
NO
YES
S17
TRANSMIT JobEnd
S18
RECEIVE OK
S19
DISCONNECTED ?
NO
YES
END

FIG. 15

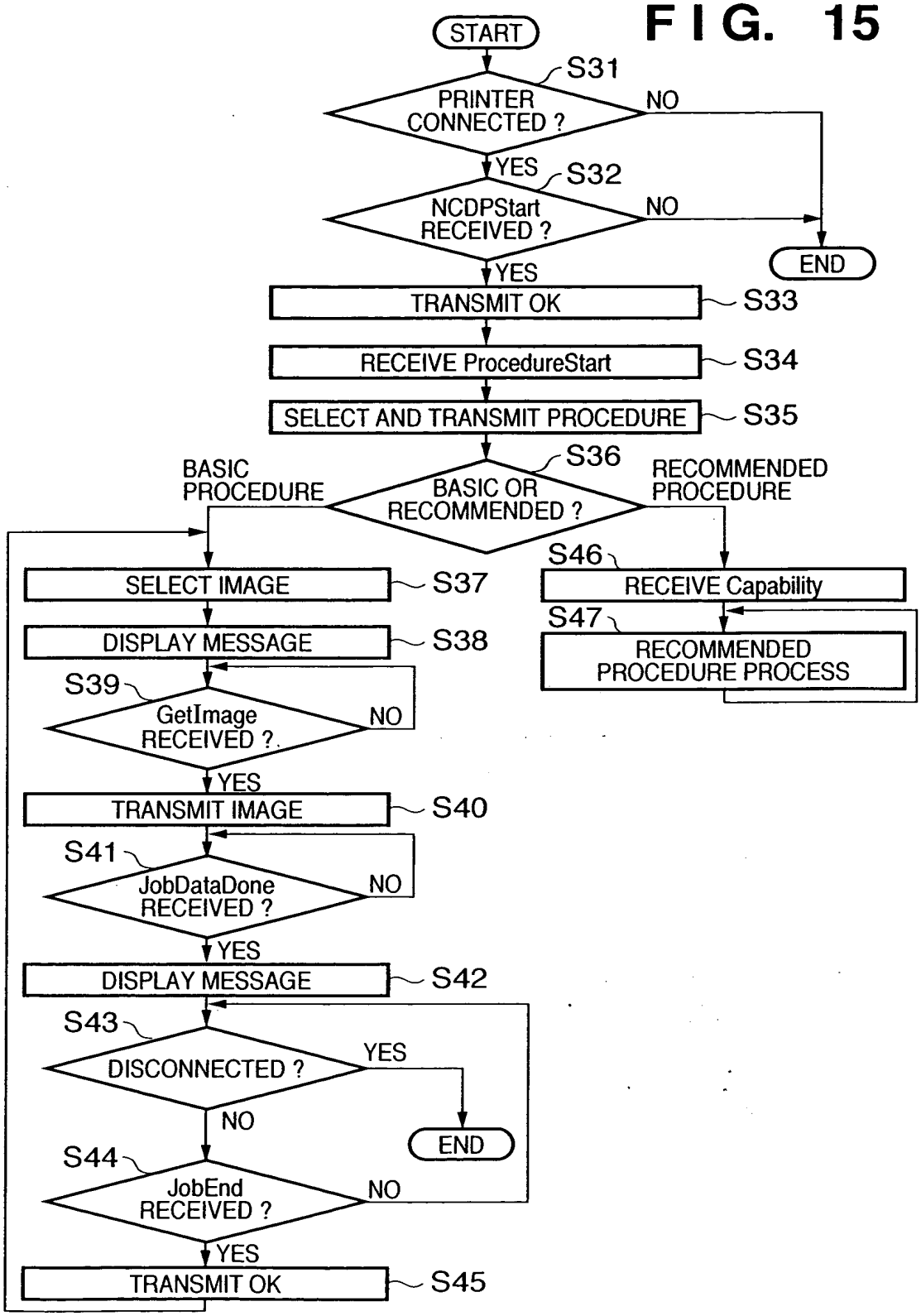

START
S31
PRINTER CONNECTED ?
NO
YES
S32
NCDPStart RECEIVED ?
NO
END
YES
TRANSMIT OK
S33
RECEIVE ProcedureStart
S34
SELECT AND TRANSMIT PROCEDURE
S35
S36
BASIC PROCEDURE
BASIC OR RECOMMENDED ?
RECOMMENDED PROCEDURE
S46
RECEIVE Capability
S47
RECOMMENDED PROCEDURE PROCESS
SELECT IMAGE
S37
DISPLAY MESSAGE
S38
S39
GetImage RECEIVED ?
NO
YES
TRANSMIT IMAGE
S40
S41
JobDataDone RECEIVED ?
NO
YES
DISPLAY MESSAGE
S42
S43
DISCONNECTED ?
YES
NO
END
S44
JobEnd RECEIVED ?
NO
YES
TRANSMIT OK
S45

FIG. 16

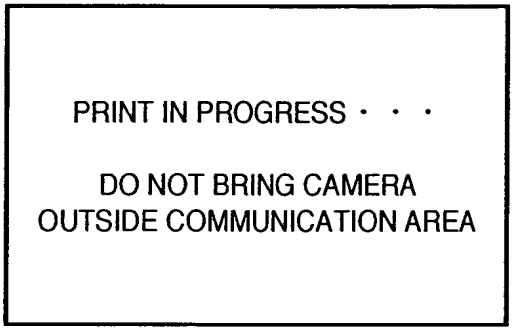
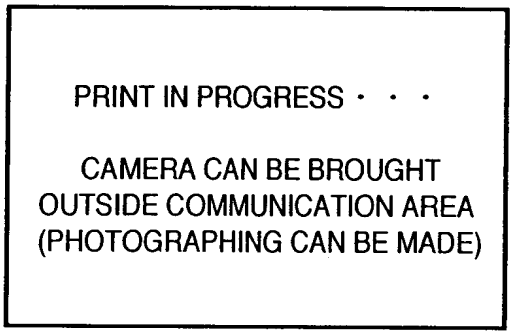

PRINT IN PROGRESS • • •
DO NOT BRING CAMERA
OUTSIDE COMMUNICATION AREA

FIG. 17


PRINT IN PROGRESS • • •
CAMERA CAN BE BROUGHT
OUTSIDE COMMUNICATION AREA
(PHOTOGRAPHING CAN BE MADE)